



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Grand Junction, Colorado

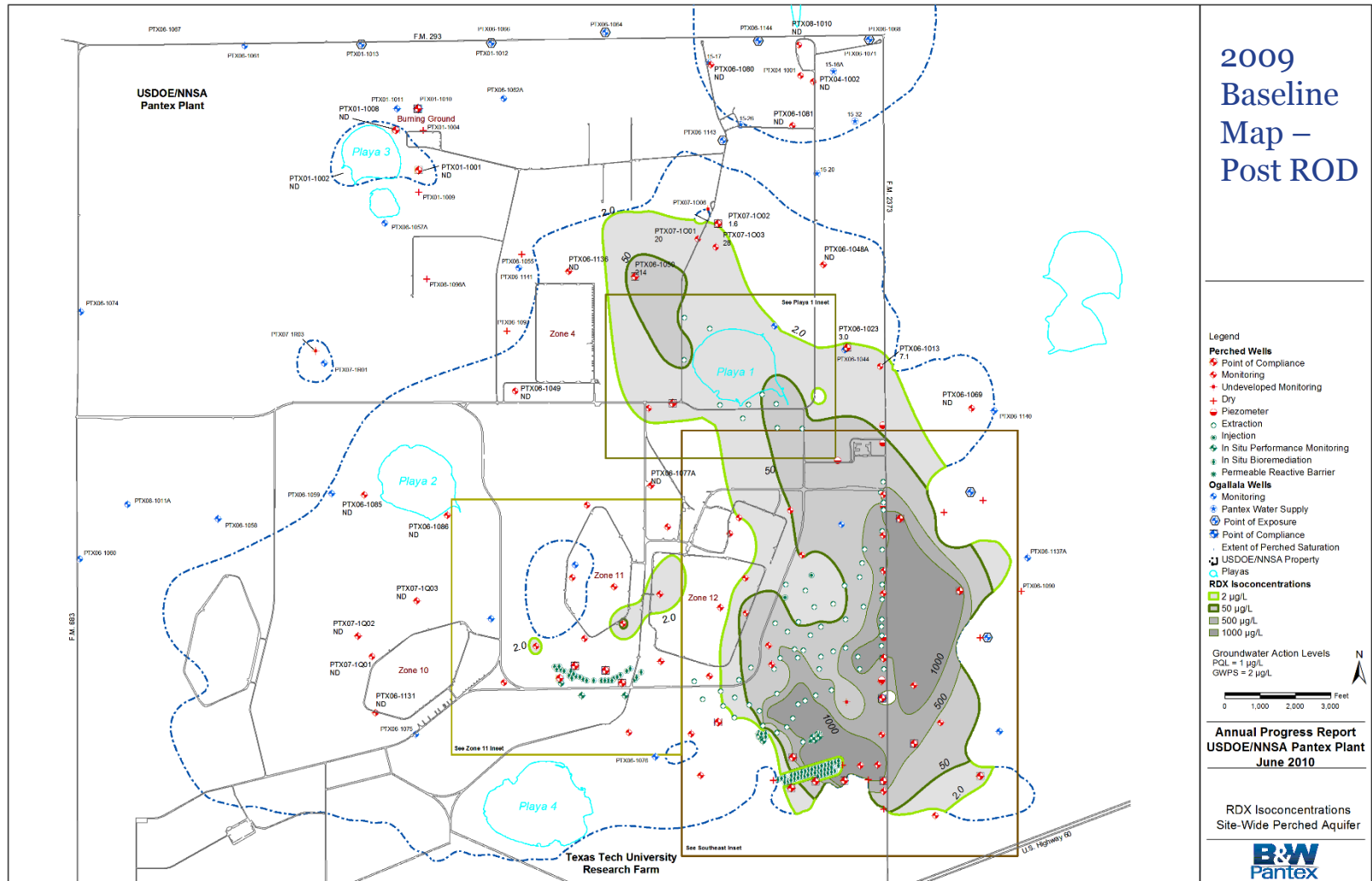
2018 Long-Term Stewardship Conference

Evaluating groundwater and contaminant flux using Passive Flux Meters

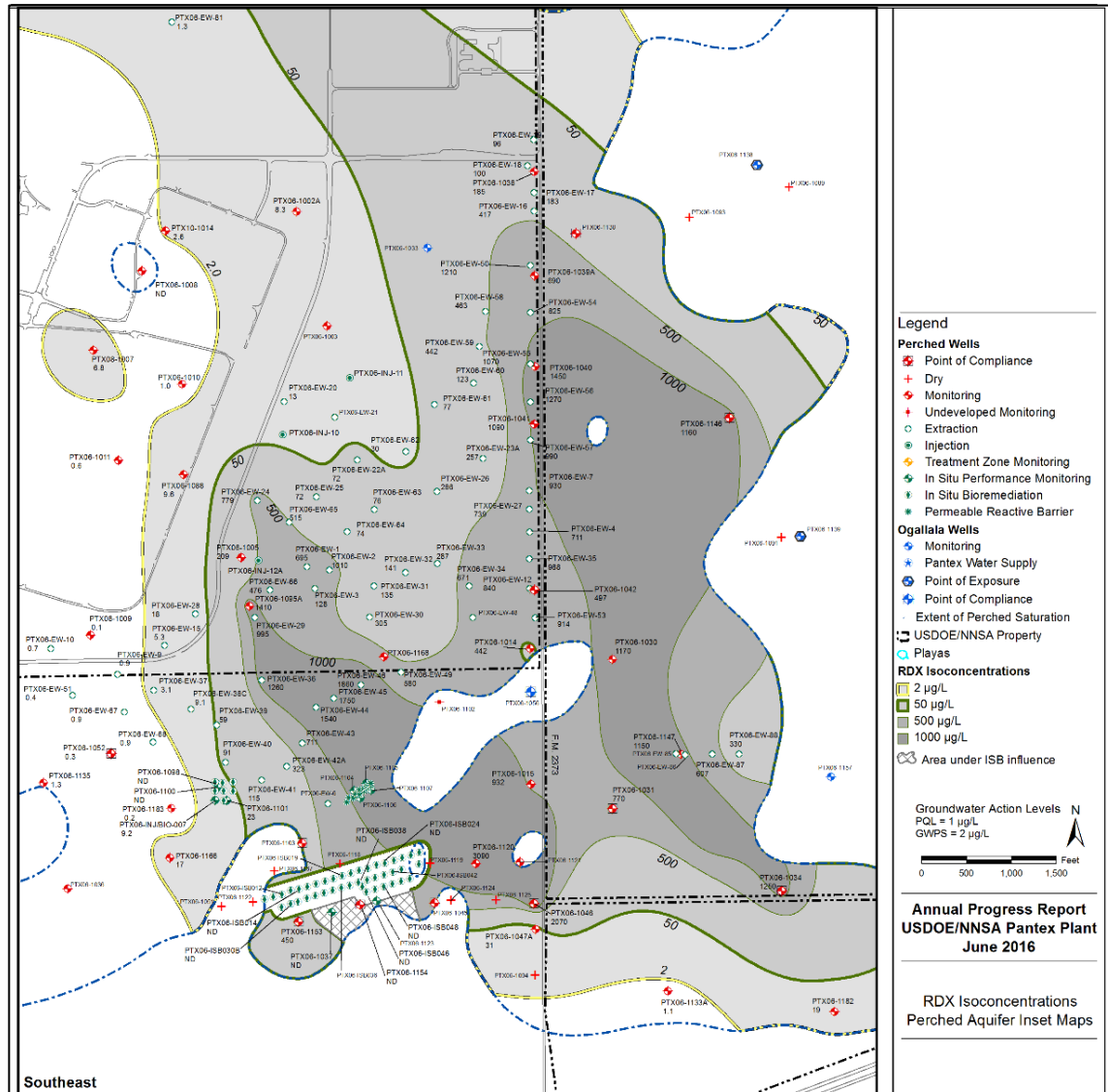
Michelle Jarrett, Sr Project Engineer Specialist
Pantex Plant - Amarillo, TX

Track 1.2

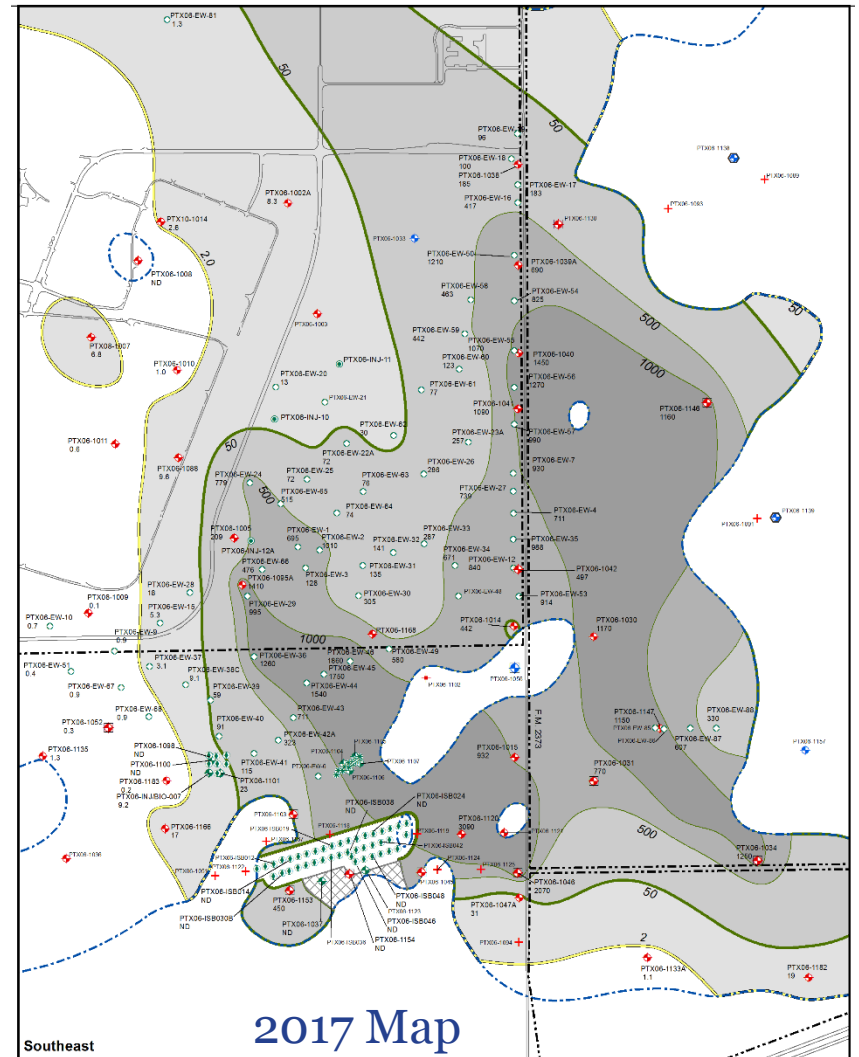
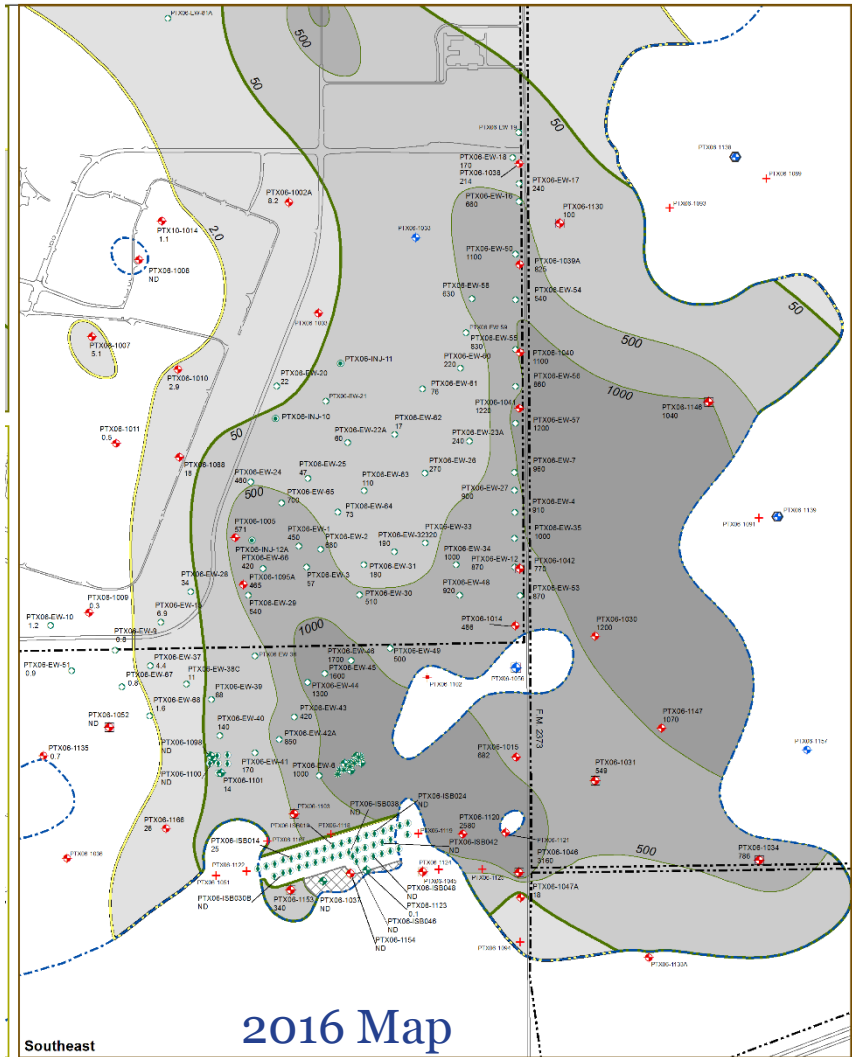
ROD Conditions

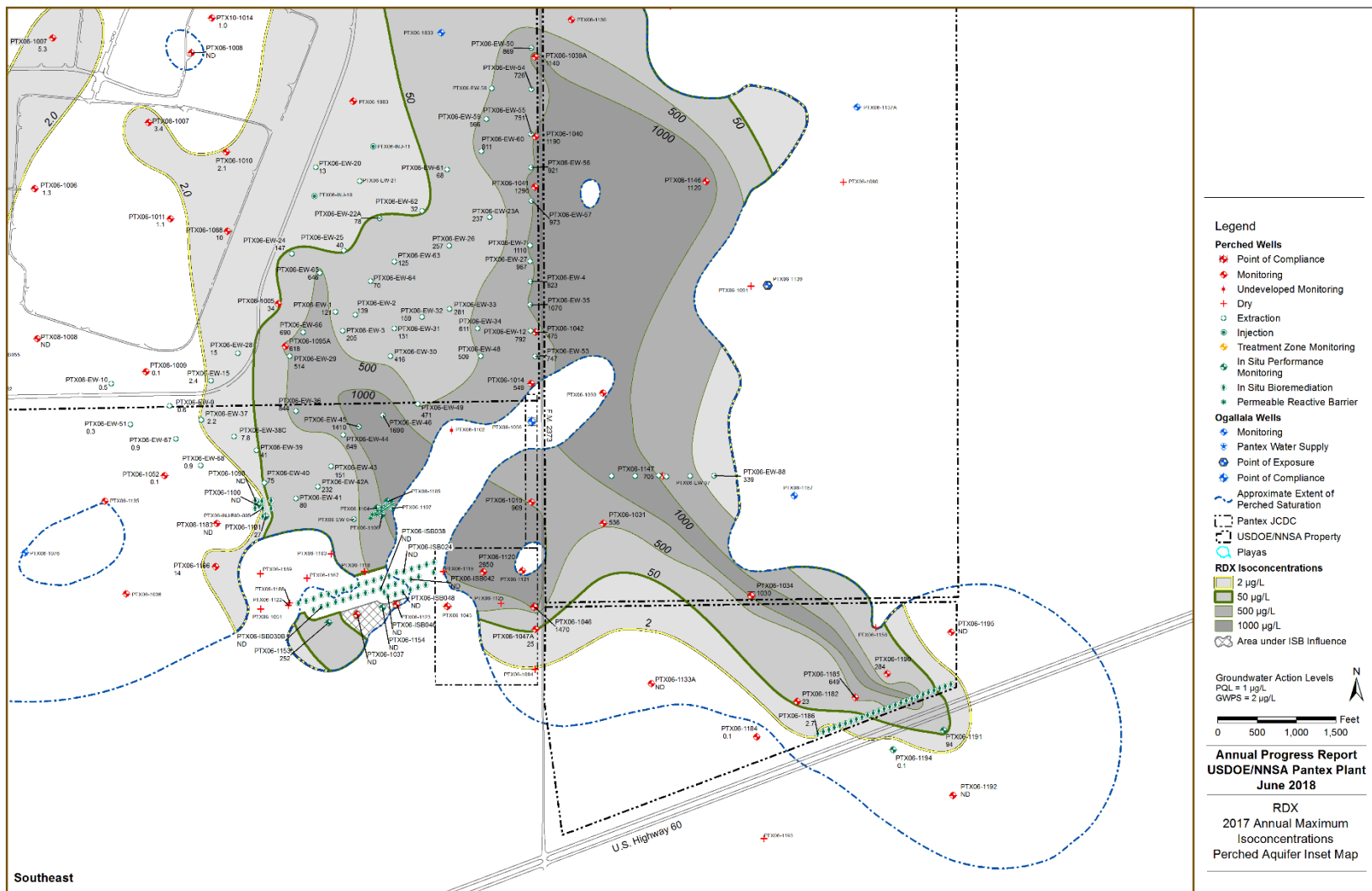


Plume Progression



How do you estimate?



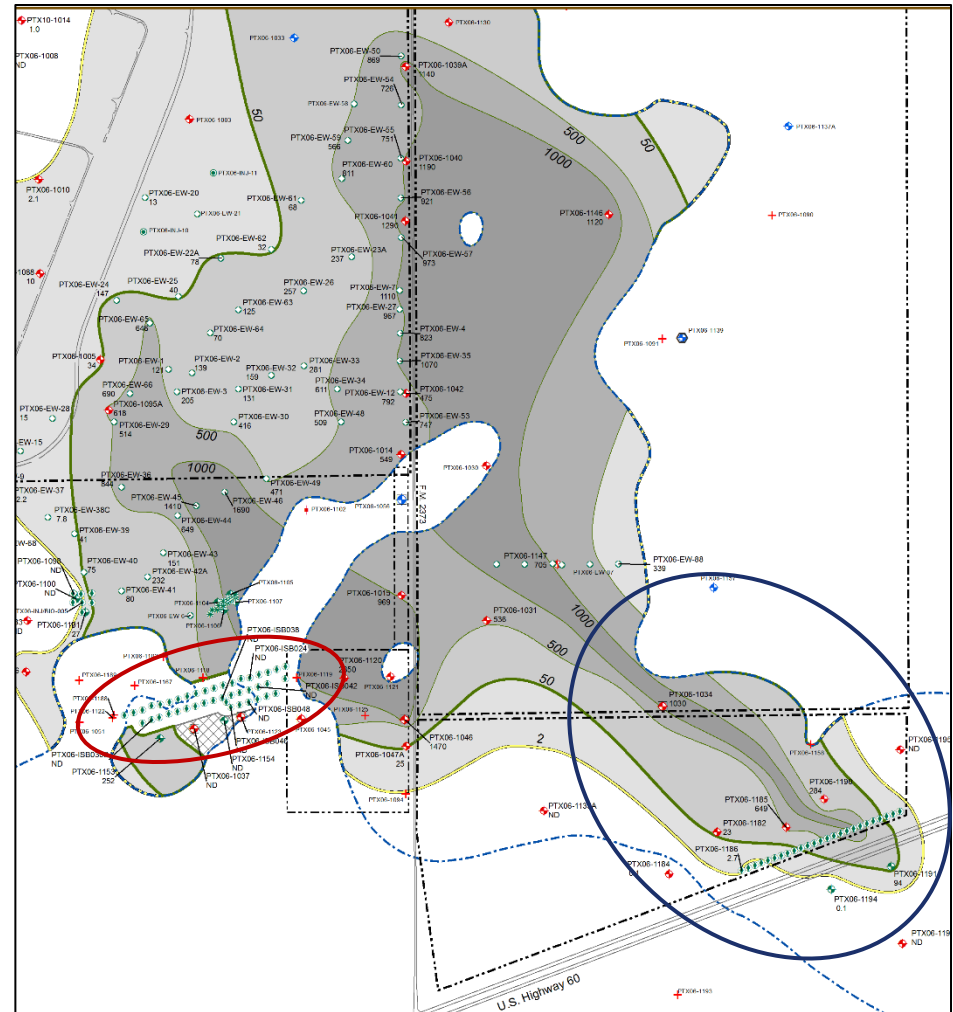


Empirical methods

- **Passive Flux Meters (Enviroflux)**
 - Measure groundwater flux
 - Measure contaminant flux
 - Can evaluate direction of flow if direction of the flow meter can be controlled during installation
 - Evaluation of extraction mass removal to optimize capture of contaminants
- Electrical resistivity (Willowstick)
 - Find preferential flow paths in the aquifer

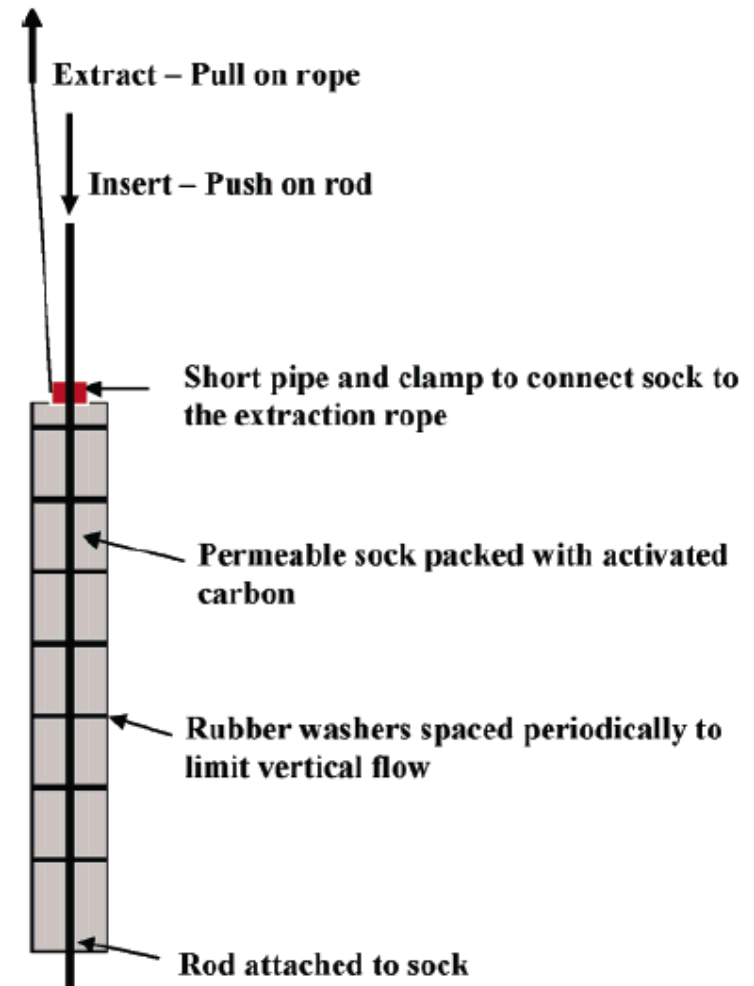
Passive Flux Meters

- Two studies at Pantex
 - Continued contaminant and groundwater flux into/out of ISB that is dewatering
 - Evaluation of flow in the southeast lobe of groundwater



Passive Flux Meter Design

- PVC tube with sorbent/tracer mixture, enclosed in a nylon mesh.
- Alcohols are used for the tracer.
- Typically 5 ft in length, with 3 separated intervals.
- More than one can be linked to cover the entire saturated interval.
- Place in well for up to four weeks.



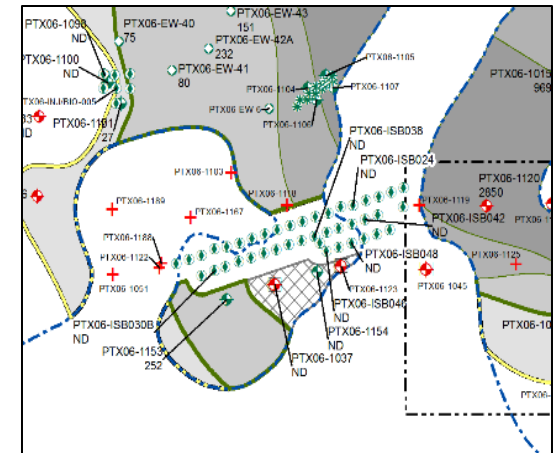
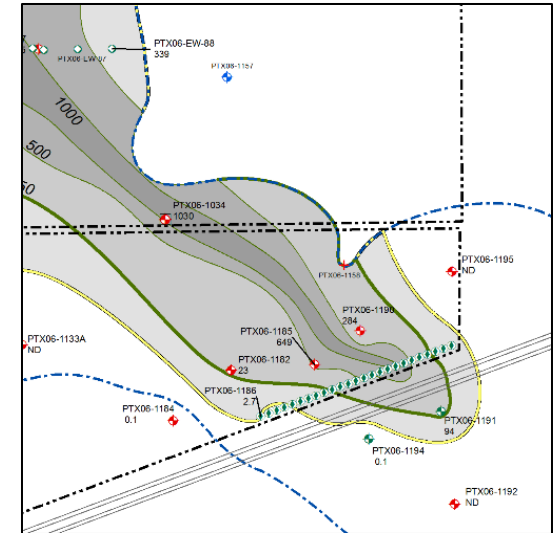
Passive Flux Meter Deployment, Retrieval, and Sampling

- Deployed using rig – attached cable to PFM and lowered into the well.
- Removed two weeks later and stored in walk-in cooler until ready to sample the next day.



Results

- SE Lobe
 - Flux was similar to that predicted for much of the perched groundwater 80-90 ft/yr)
 - Indicates that the plume has not moved as far as would be predicted from evaluation of movement from upgradient well PTX06-1034
- SE ISB
 - Indicates that water and contaminants are continuing to move into the system
 - Indicates that water and contaminants are continuing to also move into downgradient well PTX06-1153



Questions

- Contact Information:

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Environmental Projects

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Enviroflux

Enviroflux.com

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Willowstick Study

- We will contract with Willowstick by this fall to conduct the electrical resistivity study
- Results are expected by December 2018
- Contact
 - Michelle Jarrett for results/information
 - Willowstick
 - Ryan Blanchard
 - rblanchard@willowstick.com